

# STUDY OFFER FOR EXCHANGE STUDENTS

Polytech Nice Sophia

**NOTA BENE:** Please, consider the study program may suffer changes

## ELECTRONICS AND ROBOTICS

Keywords - Autonomous systems / Automation / Robotics / Communication systems / Embedded systems / Electronic engineering

### AUTUMN SEMESTER

CODE	COURSE	ECTS	SEMESTER
<b>Courses in 4<sup>th</sup> Year - Robotics</b>			
<b>Module: Infotronics</b>		<b>6</b>	
EIERO741	Object-oriented algorithmic C++	3	Autumn
EIERO742	Digital Electronics	3	Autumn
<b>Module: Autonomy</b>		<b>7</b>	
EIELEA9	Embedded AI	2	Autumn
EIELRS9	Robotics & Sensor Fusion	3	Autumn
EIELRP9	Robotics Project	2	Autumn
<b>Courses in 5<sup>th</sup> Year - Electronics</b>			
<b>Module Circuits RF – Has to be taken altogether</b>		<b>5</b>	
EIELMF9	Microélectronique RF (French)		Autumn
EIELIO9	Réseaux de Capteurs Sans Fil – IoT (English)		Autumn
EIELOF9	Outils de simulations RF (French)		Autumn
<b>Other courses</b>			
EIEL923G	Embedded Linux (potentially in English)	2	Autumn
EIEL924G	Real time executive (potentially in English)	2	Autumn
EIELRS9	Robotics & Sensor Fusion (English)	3	Autumn
EIELRP9	Robotics Project (potentially in English)	1	Autumn
EIELAU9	Autonomous Vehicles (English)	2	Autumn
EIELIO9	Wireless sensor networks – IoT (English)	2	Autumn
EIEL933T	2G, 3G and 4G Technologies (potentially in English)	2	Autumn
EIEL951	5G – HClA 5G (English)	1	Autumn
EIEL913	IoT Architecture (potentially in English)	2	Autumn
EIELEA9	Embedded Artificial Intelligence (English)	2	Autumn
EIELAS9	Advanced Control and Estimation for AS (potentially in English)	2	Autumn
EIELVF9	Circuit testing (potentially in English)	2	Autumn
EIELAV9	Verilog (potentially in English)	1	Autumn
EIELYS9	SySML (potentially in English)	2	Autumn

EIEL931T	Telecommunication Satellites (potentially in English)	1	Autumn
EIELFO9	CAO RF CST Microwave Studio (potentially in English)	1	Autumn
EIELPA91	Satellites Project - Part 1 (potentially in English)	1	Autumn
EIELIT9	Introduction to IoT (potentially in English)	2	Autumn
<b>Personal development and languages</b>			
EIBCDP7	Personal development	2	Autumn
EIELAN7	Foreign Language: English	2	Autumn
EIELFL7	Foreign Language: French	2	Autumn

## ELECTRONICS AND ROBOTICS

Keywords - Autonomous systems / Automation / Robotics / Communication systems / Embedded systems / Electronic engineering

### SPRING SEMESTER

CODE	COURSE	ECTS	SEMESTER
<b>Courses in 4<sup>th</sup> Year - Robotics</b>			
<b>Module: Autonomy</b>		<b>5</b>	
EIERO830	ROS & Gazebo	1	Spring
EIERO831	3D Machine Vision	2	Spring
EIERO821	Real-time Operating Systems	2	Spring
<b>Module: Automatic control</b>		<b>5</b>	
EIERO840	Modelling of Dynamic Systems	1	Spring
EIERO841	Digital Control	3	Spring
EIERO842	Applied Estimation	1	Spring
<b>Personal development and languages</b>			
EIBCDP8	Personal development	2	Spring
EIELAN8	Foreign Language: English	2	Spring
EIELFL8	Foreign Language: French	2	Spring

## COMPUTER SCIENCE

Keywords - Data science / Artificial intelligence / Computer science / Software engineering / Big Data / IoT / Network security / Data visualization / Cloud computing

### AUTUMN SEMESTER

CODE	COURSE	ECTS	SEMESTER
<b>Courses in 4<sup>th</sup> Year</b>			
EIEISE7	Software Security	4	Autumn
EIENMI7	Middleware and Service Oriented Computing	4	Autumn
<b>Courses in 5<sup>th</sup> Year</b>			
<b>Module: Human-Computer Interactions</b>			
EIENDI9	3D Interaction	5	Autumn
EIENIV9	Information Visualization	5	Autumn
EIENMI9	Multimodal Interaction Techniques	5	Autumn
<b>Module: Cyber Security</b>			
EIIN906B	Blockchain and Privacy	5	Autumn
SIINC906	Introduction to Security	5	Autumn
EIIN945	Security and Privacy 3.0	5	Autumn
EIENSE9	Security for IoT, CPS and Embedded Systems	5	Autumn
<b>Module: Internet of Things</b>			
EIENAS9	Architecting IoT System: Beyond Functional Correctness	5	Autumn
EIINI902	Full Stack Software Engineering for IoT	5	Autumn
<b>Module: Artificial Intelligence</b>			
EIEIN902	Advanced Deep Learning	5	Autumn
SIIN954	Machine Learning: Theory and Algorithms	5	Autumn
<b>Module: Distributed Computing</b>			
EIIN932	Algorithmic Approach to Distributed Computing	5	Autumn
EIIN943	Large Scale Distributed Systems	5	Autumn
SIIN931	Virtualized infrastructure in cloud computing	5	Autumn
<b>Module: Network</b>			
SIIN902	Algorithms for Telecommunication Networks	5	Autumn

SIIN904	Evolving Internet	5	Autumn
SIIN909	Internet Measurement and New Architectures (only available when taking EIIN904)	5	Autumn
EIIN908B	Machine Learning for Networks	5	
SIIN903	Multimedia Networking	5	Autumn
EIIN924	Peer to Peer	5	Autumn
<b>Module: Performance</b>			
SIIN907	Graph algorithms and combinatorial optimization	5	Autumn
SIIN925	Performance Evaluation of Networks	5	Autumn
<b>Module: Web</b>			
EIENWD9	Web of Linked Data	5	Autumn
<b>Personal development and languages</b>			
EIBCDP7	Personal development	2	Autumn
EIELAN7	Foreign Language: English	2	Autumn
EIELFL7	Foreign Language: French	2	Autumn

## COMPUTER SCIENCE

Keywords - Data science / Artificial intelligence / Computer science / Software engineering / Big Data / IoT / Network security / Data visualization / Cloud computing

### SPRING SEMESTER

CODE	COURSE	ECTS	SEMESTER
<b>Courses in 4<sup>th</sup> Year</b>			
EIENCA8	Embedded AI – Sensors & actuators	4	Spring
TEMPCOD	Parallelism	4	Spring
EIEIRP8	Network low layers in the internet protocols	4	Spring
<b>Personal development and languages</b>			
EIBCDP8	Personal development	2	Spring
EIELAN8	Foreign Language: English	2	Spring
EIELFL8	Foreign Language: French	2	Spring

## APPLIED MATHEMATICS & MODELLING

Keywords - Applied mathematics / Machine learning / Data modelling / Optimization / Data analysis / Algorithms

### AUTUMN SEMESTER

CODE	COURSE	ECTS	SEMESTER
<b>Courses in 5<sup>th</sup> Year</b>			
<b>Module: Fondements technologiques de la science des données</b>		<b>6</b>	
EIENBD9	Big Data Technologies		Autumn
EIENDS9	Data Science		Autumn
EIENAI9	Artificial Intelligence Engineering		Autumn
<b>Module: Apprentissage profond et ses applications</b>		<b>5</b>	
EIENAT9	Advanced Topics in Deep Learning		Autumn
EIENDE9	Deep Learning		Autumn
EIENTM9	Text Mining and Natural Language Processing		Autumn
<b>Module: Applications de l'intelligence artificielle</b>		<b>4</b>	
EIENVR9	Virtual Reality		Autumn
EIENAA9	Applied Artificial Intelligence		Autumn
<b>Module: Traitement de données multidimensionnelles</b>		<b>4</b>	
EIENML9	Machine Learning for Image Analysis		Autumn
EIENAD9	Advanced Data Mining		Autumn
<b>Personal development and languages</b>			
EIBCDP9	Personal development	2	Autumn
EIELAN9	Foreign Language: English	2	Autumn
EIELFL9	Foreign Language: French	2	Autumn

## SMART BUILDING

Keywords - Civil engineering / Energy / Environmental science / Building management / Construction methods

### AUTUMN SEMESTER

CODE	COURSE	ECTS	SEMESTER
<b>Courses in 5<sup>th</sup> Year</b>			
<b>Module I: Advanced structure</b>		<b>12</b>	
EIEBGO9	Structures and geotechnics	3	Autumn
EIEBMT9	Steel and mixed construction	2	Autumn
EIEBBA9	Structures in reinforced and prestressed concrete	3	Autumn
EIUBSV9	Structures: Project	4	Autumn
<b>Module II: Energy and comfort management</b>		<b>12</b>	
EIEBNA9	Advanced energy modelisations	3	Autumn
EIEBSB9	Energy systems for Smart buildings/grids/cities	3	Autumn
EIEBGN9	Energy management in construction	2	Autumn
EIUBPR9	Energy and comfort Management: Project	4	Autumn
<b>Module III: Smart building</b>		<b>12</b>	
EIEBAF9	Digital and analogic electronics	2	Autumn
EIEBCV9	Sensors for Smart building	2	Autumn
EIEBTF9	Information processing for Smart building	2	Autumn
EIEBIT9	IOT and technologies for Smart building	2	Autumn
EIUBBI9	Smart building: Project	4	Autumn
<b>Personal development and languages</b>			
EIBCDP7	Personal development	2	Autumn
EIELAN7	Foreign Language: English	2	Autumn
EIELFL7	Foreign Language: French	2	Autumn

## SMART BUILDING

Keywords - Civil engineering / Energy / Environmental science / Building management / Construction methods

### SPRING SEMESTER

CODE	COURSE	ECTS	SEMESTER
<b>Courses in 3<sup>rd</sup> Year</b>			
<b>Module I: Structure</b>		<b>6</b>	
EIBA623	Introduction to Eurocodes	1	Spring
EIBA625	Reinforced concrete	3	Spring
EIEBMS6	Structural modelling	2	Spring
<b>Module II: Energy</b>		<b>4</b>	
EIEBA640	Thermal transfers	2	Spring
EIEBA641	Thermodynamics	2	Spring
<b>Module III: Environmental control</b>		<b>2</b>	
EIEBCB6	Bioclimatic design	1	Spring
EIEBMT6	Thermal modelling	1	Spring
<b>Courses in 4<sup>th</sup> Year</b>			
<b>Module IV: Mechanics III</b>		<b>8</b>	
EIEBA815	Fluid mechanics	3	Spring
EIEBA816	Finite elements	2	Spring
EIEBA817	Seismic design	3	Spring
<b>Module V: Structures II</b>			
EIBAM812	Steel construction	1	Spring
<b>Personal development and languages</b>			
EIBCDP8	Personal development	2	Spring
EIELAN8	Foreign Language: English	2	Spring
EIELFL8	Foreign Language: French	2	Spring



## BIOLOGICAL ENGINEERING

Keywords - Molecular and Cellular Pharmacology / Cancer and Aging / Developmental Biology and Pathogenesis / Marine Ecology and Ecotoxicology / Community Ecology and Agronomy / Bioinformatics

### AUTUMN SEMESTER

CODE	COURSE	ECTS	SEMESTER
<b>Courses in 4<sup>th</sup> Year</b>			
EIGB713	Drug Metabolism	5	Autumn
EIGB762	Introduction to pre-clinical toxicity	5	Autumn
EIGB771	Molecular Biology*	5	Autumn
EIGB772	Neurosciences	5	Autumn
EIGB723	Chemistry of Natural Substances*	5	Autumn
EIGB735	Python prog. and knowledge extraction from biological data	5	Autumn
TEPCOD	Introduction to scientific research <sup>1</sup>	3	Autumn
<b>Courses in 5<sup>th</sup> Year</b>			
EIGB982	Symbolic AI for complex biological networks <sup>2</sup>	5	Autumn
<b>Personal development and languages</b>			
EIBCDP9	Personal Development	2	Autumn
EIELAN9	Foreign Language: English	2	Autumn
EIELFL9	Foreign Language: French	2	Autumn

\*Only educational materials will be in English (class taught in French)

<sup>1</sup> Course offered by EUR DS4H (every Thursday morning – 9am to 12 am). No prerequisite required (<https://ds4h.univ-cotedazur.eu/education/minor-introduction-to-scientific-research>)

<sup>2</sup> No prerequisite required for the first half of the course. For the second half: strong background in bioinformatics and mathematics required. Possibility to follow the first half of the course only (exams will be adapted for the first half only)